

## CLAIMS

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1. A conveyance system for conveying one or more wafers between a plurality of wafer processing apparatus having a wafer exchange position, comprising:
- a guide rail provided between said wafer exchange position of said plurality of wafer processing apparatus;
- a mobile element provided so as to be capable of moving along said guide rail; and
- 10 a wafer exchange element provided on said mobile element, capable of holding a wafer at a time, and exchanging a wafer at a time with other apparatus capable of exchanging a wafer;
- wherein a wafer is received from one of the wafer processing apparatus by said wafer exchange element, the wafer processed by said wafer processing
- 15 apparatus is held by said wafer exchange element, said mobile element moves to said wafer exchange position of a wafer processing apparatus to perform a next process on the held processed wafer, and the wafer held by said wafer exchange element is transferred to the wafer processing apparatus to perform the next process.
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2. A conveyance system in accordance with claim 1, wherein said mobile element is driven by a linear motor.
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3. A conveyance system in accordance with claim 1, wherein said guide rail comprises a first magnetic field generating element for generating a magnetic field; and said mobile element comprises a second magnetic field generating element for generating a magnetic field, forming a linear motor in conjunction

with said first magnetic field generating element, and conferring a propulsive force to said mobile element.

4. A conveyance system in accordance with claim 2, further comprising a power supply element provided along said guide rail; wherein an electric power is supplied to said mobile element by means of said power supply element.

5. A conveyance system in accordance with claim 4, wherein said power supply element comprises a lain electric cable or electric coil provided along said guide rail, and an electricity receiving element provided on said mobile element for receiving the electric power supplied to said electric cable or electric coil without contact, whereby electric power is supplied to said mobile element without contact.

6. A conveyance system in accordance with claim 2, further comprising:  
 a control element for generating control data for controlling the operations of said mobile element;  
 a communication element provided on said mobile element for performing data communication between said control element and said mobile element; and  
 a mobile element control unit provided on said mobile element for controlling operations of said mobile element based on the control data supplied from said control element through said communication element.

7. A conveyance system in accordance with claim 6, wherein said control element supplies electrical signals containing control data to the electric cable or electric coil provided along said guide rail; and said communication element

receives the electrical signals containing control data supplied to said electric cable or electric coil by means of said control element.

8. A conveyance system in accordance with claim 6, wherein said communication element is an optical communication element, a radio communication element or a cable communication element provided alongside of said guide rail.

9. A conveyance system in accordance with claim 6, wherein said mobile element control unit is attached to said mobile element on the side of the direction of movement of said mobile element.

10. A conveyance system in accordance with claim 6, further comprising a position detecting element for detecting a position of said mobile element moving along said guide rail; and said control element generates control data based on detection results of said position detecting element and wafer conveyance requests from said wafer processing apparatus.

11. A conveyance system in accordance with claim 6, further comprising position detecting element for detecting a position of said mobile element moving along said guide rail; and said mobile element control unit controls the operations of said mobile element based on detection results of said position detecting element and control the data supplied from said control element through said communication element.

12. A conveyance system in accordance with claim 10, wherein said position detecting element comprises a plurality of mobile element detecting sensors arranged along said guide rail, and said mobile element detecting sensors arranged

at a regular spacing, or are provided more densely at positions closer to said wafer exchange positions of said wafer processing apparatus.

5 13. A conveyance system in accordance with claim 1, further comprising a space forming element for forming a partitioned space such as to cover said guide rail and a path of movement of said mobile element moving along said guide rail; wherein the degree of air purity inside said partitioned space formed by said space forming means is higher than the degree of purity outside said space.

10 14. A conveyance system in accordance with claim 1, wherein a plurality of said mobile elements are provided on said guide rail.

15 15. A conveyance system in accordance with claim 1, wherein a plurality of said wafer processing apparatus are arranged in a plurality of rows and a plurality of said guide rails are provided in correspondence therewith; at least one mobile element is provided on each of said plurality of guide rails; and when transferring wafers between said guide rails of different rows, one or more wafers are exchanged between said wafer exchange elements of said mobile elements provided on the respective guide rails.

20 16. A conveyance system in accordance with claim 1, wherein a plurality of said wafer processing apparatus are arranged in a plurality of rows and a plurality of said guide rails are provided in correspondence therewith; at least one mobile element is provided on each of said plurality of guide rails; and further comprising  
25 a wafer holding element capable of holding one or more wafers positioned between said plurality of rows of guide rails; wherein said wafer exchange element transfers one or more wafers to said wafer holding element when

transferring one or more wafers between said guide rails of different rows; and said wafer exchange elements provided on said mobile elements positioned in guide rails of different rows receive said wafers held by said wafer holding element.

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17. A conveyance system in accordance with claim 1, wherein said wafer exchange element is capable of holding a plurality of wafers.

18. A conveyance system in accordance with claim 1, further comprising a  
10 holding position adjustment unit provided on said mobile element for adjusting a holding position of a wafer by said wafer exchange element.

19. A conveyance system in accordance with claim 18, wherein said holding  
position adjusting unit is attached to said mobile element on the side of the  
15 direction of movement of said mobile element.

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